Remarks:

This amendment is submitted in an earnest effort to advance this case to issue without delay.

The subject matter of claim 12 has been inserted into claim 1, claim 12 has been canceled, and the dependencies of claims 13 to 15 have been corrected. This in no way constitutes a new issue so entry of this amendment after final action is by way of right.

The rejection of claim 12, which originally depended directly from claim 1, required the combination of four references, namely US '298 of Naghan, US '179 of Zanger, US '849 of Baer, and US '436 of Rigrod.

Just on its face, such a rejection is suspect unless it can be shown that the references relate to a common subject matter and do not have aspects that make their combination possible, which is fairly rare with four references.

Here Naghan is an intracavity doubled laser. The laser is generated and the radiation s doubled in the same cavity. Thus Naghan differs from the present invention because it is not a

miniaturized cavity, the crystal works at a temperature of 155°C, and a type I non-critical phase-matching crystal is used.

At the same time Zanger converts laser radiation into frequency-doubled radiation with laser generator outside the system. It does not have laser cavity. Thus this is different from the system of the present invention and that of Naghan. Furthermore Zanger teaches the use of noncritical phase matching when possible, and above all generating visible radiation. Critical phase matching is used for generating nonvisible UV radiation because a noncritical crystal is not available for the desired wavelength. Hence Zanger uses critical-phase matching in spite of the poorer beam quality and efficiency just because there is no different choice available.

Naghan and Zanger are completely different from each other and their teachings cannot be combined.

Baer discloses an intracavity doubled laser in which the laser resonator needs to be long enough to define a central region where the standing waves for the lasing modes are out of phase for a distance large enough to contain both the gain medium and nonlinear crystal, and therefore the length of the laser resonator is chosen to be at least 3 times the total distance occupied by the non linear and gin medium crystal. Thus the teaching of Baer is to make a cavity as long as necessary to satisfy a Particular requirement. In the present invention, the length of the cavity is

such as to define a miniature cavity, that is a cavity whose length as defined in the claims does not exceed ten times the sum of the lengths of the crystals. Therefore the teaching of the present invention is to make the cavity small as possible.

Accordingly, combining Baer with the other cited documents would not lead the person skilled in the art to the claimed system.

Finally Marshall does not actually disclose the mechanical structure now defined in claim 1, so that this critical element, which is also missing from the other nonanalogous-art references discussed above, is not seen and, for this reason alone, claim 1 is allowable.

In claim 1 the cavity is described specifically as having temperature control of the reflectors, of the active material, and of the nonlinear crystal. Now claim 1 further makes it clear that this "thermostating means" includes a mechanical structure associated with the cavity.

This mechanical structure thermally controls all the devices of the apparatus by a mechanical structure of the cavity. In fact, the present invention is based on the use of a cavity structure and of optical elements that minimize optical losses of the resonator at the infrared wavelength and allow it to operate at very high efficiency, overcoming the low efficiency and bad beam

quality issues usually associated to critical phase matching, and ensuring performance stabilization thanks to the thermal control of the system.

The entire cavity, including the elements of the resonator and the laser crystal, is thermostated or temperature controlled to establish a temperature that guarantees the optimum OICSHG process. Here, the laser system operates correctly only when the whole cavity is at the predetermined temperature value. None of the cited documents discloses that the mirrors also are connected to the same structure as the crystals and that the whole structure (cavity) is thermostated or temperature controlled.

For these reasons all the claims in the case are clearly in condition for allowance and passage to issue. Notice to that effect is earnestly solicited.

If only minor problems that could be corrected by means of a telephone conference stand in the way of allowance of this

case, the examiner is invited to call the undersigned to make the necessary corrections.

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